

Protection Of Water Contaminated By Chemical And Microbial Contaminants For Agriculture: Application Of The Advanced Oxidation Process

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ARTICLE INFO

Article History:

Received : 18/03/2016

Accepted : 20/01/2017

Key Words:

photocatalysis,
ZnO–SnO₂ heterosystem,
alizarin red S,
sunlight irradiation,
Langmuir- Hinshelwood
model.

ABSTRACT/RESUME

Abstract: This paper reports the synthesis, characterization and photocatalytic degradation of alizarin red S (ARS) on the novel new hetero-system ZnO-SnO₂. The hetero-system, prepared by chemical route, was characterized by spectroscopy, energy dispersive spectroscopy (EDS) analysis, microscopy, diffuse reflectance and powder X-ray diffraction. Photo-degradation of ARS was investigated on ZnO, SnO₂ and ZnO– SnO₂ hetero-system. The effect of catalysis dose, initial pH, initial concentration were investigated, the photocatalytic degradation was performed under sunlight irradiation, 84% of (20 mg/L) was degraded within 120 min for concentration. Batch kinetic experiments showed that the degradation follows a pseudo- first-order kinetic with a high correlation coefficient (0.994) according to the Langmuir-Hinshelwood model.
